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FEDERAL COMMUNICATIONS COMMISSION
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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
EchoStar Communications Corporation	)	**RM - 9345**
	)	
Petition for Declaratory Ruling and Rulemaking With Respect to Defining, Predicting and Measuring "Grade B Intensity" for Purposes of the Satellite Home Viewer Act.	)	

COMMENTS OF PRIMETIME 24 JOINT VENTURE IN SUPPORT OF PETITION FOR DECLARATORY RULING AND RULEMAKING OF ECHOSTAR COMMUNICATIONS CORPORATION

PrimeTime 24 Joint Venture ("PrimeTime 24") hereby submits its comments in support of the Petition for Declaratory Ruling and Rulemaking filed with the Federal Communications Commission (the "Commission" or "FCC") by EchoStar Communications Corporation ("EchoStar") on August 18, 1998 (the "EchoStar Petition").

The EchoStar Petition raises essentially the same issues as the Emergency Petition for Rulemaking (Docket No. RM - 9335) filed with the Commission by the National Rural Telecommunications Cooperative (the "NRTC Petition") on July 8, 1998, and PrimeTime 24 therefore incorporates herein by reference its Comments in Support of Emergency Petition, filed therein on September 4, 1998.

As has become apparent over the last sixty (60) days, the recent decision of the United States District Court in Miami to issue a sweeping nationwide preliminary injunction requiring that PrimeTime 24 and its distributors terminate satellite delivery of CBS and Fox programming to hundreds of thousands of subscribers, threatens to deliver a crippling blow, not just to the

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interests of those subscribers who may thereby be deprived of all access to that network programming, but also to the national policy of fostering competition through the development of the satellite televison industry as a viable alternative to cable television. In addition, that decision calls into serious question the national policy of ensuring that television service is available as widely as possible throughout all areas of this country.

The NRTC and EchoStar Petitions essentially ask this Commission to take action, pursuant to its regulatory authority, to remedy this dire situation by defining the phrase "over-the-air signal of Grade B intensity" received through a "conventional outdoor rooftop receiving antenna" for purposes of determination of television reception at individual households, and by specifying a methodology by which such a signal may be predicted or measured.

Except for the entrenched broadcast industry representatives, who would prefer to be able to dictate national telecommunications policy through the District Court in Miami, there is nearly universal support for this critically necessary exercise of regulatory authority by the Commission. The Commission now has the opportunity to act before the Miami Court's ill-conceived preliminary injunction has its worst effects. As these Comments are being filed, the parties to the litigation are in the process of stipulating to an extension of the Court-ordered cut-off date for the termination of existing subscribers to February 28, 1999. This, of course, will provide the Commission with the opportunity to complete its process by the currently-anticipated February 1, 1999 date, and thus to determine by the exercise of its authority what subscribers shall be eligible to receive network programming by satellite under the Satellite Home Viewer Act.

In considering the two Petitions, and in determining how best to define "Grade B" for purposes of effectuating national telecommunications policy, PrimeTime 24 urges the Commission to consider carefully the materials that it and others will be submitting to the Commission that will demonstrate, for example, the inadequacy of the approach sponsored by the NAB. The Comments previously submitted by PrimeTime 24 in the NRTC Proceeding outline some of the matters that PrimeTime 24 and others will be raising. There is, however, a further point that the Commission should consider as well.

The broadcast industry presented its so-called "Longley-Rice maps" to the Miami Court in a manner which suggested that, in any given cell where a calculation was made, the model returned one of two results: (1) a prediction that (50% of the time, at 50% of the locations, with 50% confidence, at an antenna presumed to be 30' above ground) the signal equaled or exceeded the Grade B level; or (2) a prediction that it did not. Indeed, its expert witnesses testified to that effect, and the maps presented as exhibits were colored to suggest that that was the case. See generally, Comments of PrimeTime 24 Joint Venture in Support of Emergency Petition, filed in the NRTC Proceeding, Exhibits B, C (excerpts from Jules Cohen testimony). The Court based its injunction on that assumption.

But the story is not that simple. In reality, the computer program used to carry out Longley-Rice model computations can also return, for any cell, an "error code" warning that, although it has made a calculation for the cell, one or more of the parameters in the calculation is outside the appropriate range. In such cells, the calculation results are not to be trusted.[1]

---

[1] See A Guide to the Use of the ITS Irregular Terrain Model in the Area Prediction Mode, NTIA Report 82-100, April 1982, by G. A. Hufford, A. G. Longley, and W. A. Kissick, p. 70. (A copy of excerpts from this Report is filed herewith as Exhibit A.) That Report notes that "The error marker KWX is meant to serve as a warning to the user that *one or more of the*

These error codes, moreover, can occur quite frequently. As counsel for Midwest Television, Inc. (ironically, one of the firms that represented the broadcast industry in the Miami litigation) pointed out to the Commission, "[i]n regions with mountainous terrain ... such error locations would comprise a large part of a given station's coverage area." Petition for Partial Reconsideration of Midwest Television, Inc. (June 13, 1997), in In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, MM Docket No. 87-268. The extent of the problem, even in areas that are *not* commonly thought of as being mountainous, is illustrated by the Longley-Rice maps filed by Midwest Television illustrating the error code frequencies for a San Diego station.[2]

PrimeTime 24 recognizes that the Commission chose not to take this problem with the Longley-Rice methodology into account, when asked to do so by Midwest Television, Inc. in the very different context of evaluating the effect of interference in allocating digital television frequencies. But while the Commission reasonably could have concluded that errors made in individual cells in calculating potential interference may be set aside when the task is evaluating the overall impact of interference to a station in the context of frequency assignment, such errors cannot and should not be set aside when the issue is the eligibility of particular households for satellite television service, *in the specific cell where the error has occurred.* Here, the fact that

---

parameters have values that make the results dubious or unusable." Id. at note 1 (emphasis added). The error marker can indicate that "parameters are close to limits" (code 1), "impossible parameters; default values ... substituted" (code 2); "internal calculations show parameters out of range" (code 3); or "parameters out of range" (code 4). Id.

[2] Copies of the maps included in the Midwest Television filing are attached hereto as Exhibit B.

on balance the area surrounding the cell may not suffer from interference is irrelevant, and does not outweigh the result in the cell itself.

In short, the problem of error codes, like the problem of using median parameters for location, time and confidence variables, illustrates the deficiencies of the Miami Court's use of the Longley-Rice model as a basis for establishing which households can receive a Grade B signal. The public interest cries out for the Commission's assertion of its regulatory authority and expertise to give practical meaning to the "unserved household" definition in the Satellite Home Viewer Act.

CONCLUSION

For all of the reasons set forth by PrimeTime 24 above and in its prior Comments, and for all of the reasons set forth by the other parties who have urged the Commission to take action, the Commission should grant the EchoStar Petition (and the NRTC Petition), and expeditiously address the issue in a manner that protects the national interests in free competition and universal access to television service.

Respectfully submitted,

PRIMETIME 24 JOINT VENTURE
By its attorneys

Andrew Z. Schwartz

Andrew Z. Schwartz
Stephen B. Deutsch
Richard M. Brunell
FOLEY, HOAG & ELIOT LLP
1747 Pennsylvania Avenue
Washington, D.C. 20006
(202) 223-1200

One Post Office Sq.
Boston, MA 02109
(617) 832-1000

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A GUIDE TO THE USE OF THE ITS IRREGULAR TERRAIN MODEL IN THE AREA PREDICTION MODE

U.S. DEPARTMENT OF COMMERCE
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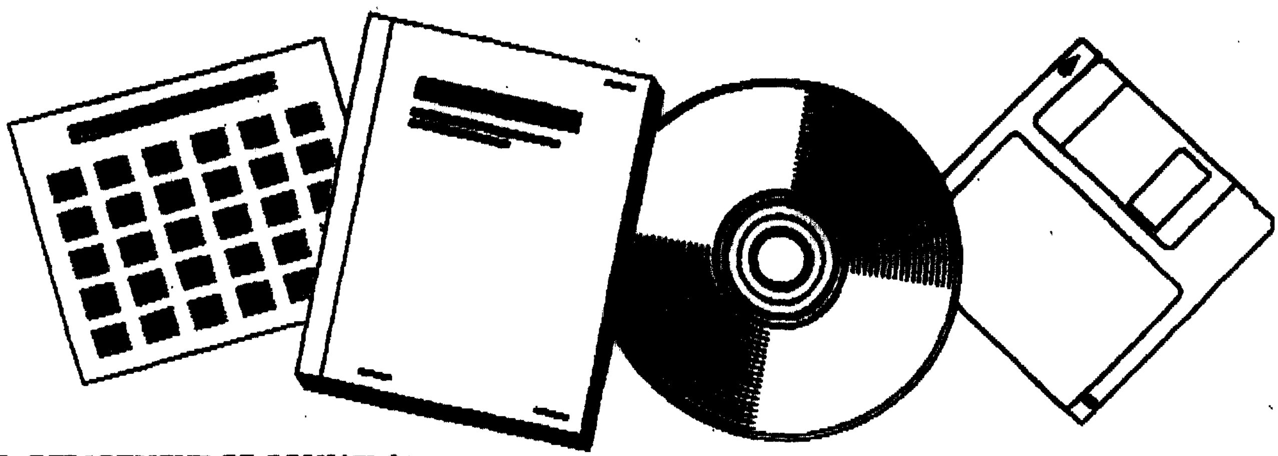

U.S. DEPARTMENT OF COMMERCE
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NTIA REPORT 82-100

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A Guide to the Use of the ITS Irregular Terrain Model in the Area Prediction Mode

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The ITS model of radio propagation for frequencies between 20 MHz and 20 GHz (the Longley-Rice model) is a general purpose model that can be applied to a large variety of engineering problems. The model, which is based on electromagnetic theory and on statistical analyses of both terrain features and radio measurements, predicts the median attenuation of a radio signal as a function of distance and the variability of the signal in time and in space.

The model is described in the form used to make "area predictions" for such applications as preliminary estimates for system design, military tactical situations and surveillance, and land-mobile systems. This guide describes the basis of the model, its implementation, and some advantages and limitations of its use. Sample problems are included to demonstrate applications of the model.

16. Key Words (Alphabetical order, separated by semicolons)

Area prediction; radio propagation model; SHF; statistics; terrain effects; UHF; VHF

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A Guide to the Use of the ITS Irregular Terrain Model in the Area Prediction Mode

G.A. Hufford
A.G. Longley
W.A. Kissick

U.S. DEPARTMENT OF COMMERCE
Malcolm Baldrige, Secretary

Bernard J. Wunder, Jr., Assistant Secretary
for Communications and Information

April 1982

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A GUIDE TO THE USE OF THE ITS IRREGULAR TERRAIN MODEL IN THE AREA PREDICTION MODE

George A. Hufford, Anita G. Longley, and William A. Kissick*

The ITS model of radio propagation for frequencies between 20 MHz and 20 GHz (the Longley-Rice model) is a general purpose model that can be applied to a large variety of engineering problems. The model, which is based on electromagnetic theory and on statistical analyses of both terrain features and radio measurements, predicts the median attenuation of a radio signal as a function of distance and the variability of the signal in time and in space.

The model is described in the form used to make "area predictions" for such applications as preliminary estimates for system design, military tactical situations and surveillance, and land-mobile systems. This guide describes the basis of the model, its implementation, and some advantages and limitations of its use. Sample problems are included to demonstrate applications of the model.

Key words: area prediction; radio propagation model; SHF; statistics; terrain effects; UHF; VHF

1. INTRODUCTION

Radio propagation in a terrestrial environment is an enigmatic phenomenon whose properties are difficult to predict. This is particularly true at VHF, UHF, and SHF where the clutter of hills, trees, and houses and the ever-changing atmosphere provide scattering obstacles with sizes of the same order of magnitude as the wavelength. The engineer who is called upon to design radio equipment and radio systems does not have available any precise way of knowing what the characteristics of the propagation channel will be nor, therefore, how it will affect operations. Instead, the engineer must be content with one or more models of radio propagation--i.e., with techniques or rules of thumb that attempt to describe how the physical world affects the flow of electromagnetic energy.

Some of these models treat very specialized subjects as, for example, microwave mobile data transfer in high-rise urban areas; others try to be as generally applicable as Maxwell's equations and to represent, if not all, at least most, aspects of physical reality. In this report we shall describe one of the latter models. Called "the ITS irregular terrain model" (or sometimes the Longley-Rice

*The authors are with the Institute for Telecommunication Sciences, National Telecommunications and Information Administration, U.S. Department of Commerce, Boulder, Colorado 80303.

APPENDIX A. LRPROP AND AVAR--AN IMPLEMENTATION OF THE ITS MODEL FOR MID-RANGE FREQUENCIES

In this appendix we give the explicit source code listing for a computer implementation of version 1.2.1 of the ITS irregular terrain model (the Longley-Rice model) for radio propagation at frequencies between 20 MHz and 20 GHz. Accompanying the listing are directions to the programmer for introducing the proper subroutines into an applications program.

The language used is FORTRAN and conforms to the 1966 ANSI standards. We believe it is also compatible with the 1977 ANSI standards. On most modern computers the routine should be usable with no modification. For satisfactorily accurate results we require floating point numbers having at least six significant decimal figures and a range at least as large as $10^{\pm 35}$.

The routines have been constructed so as to be both flexible and efficient. Redundant or unnecessary computations have been avoided, and there are no iterative processes involved. The routines may be used for either the "area prediction" mode or the "point-to-point" mode; and if the desired output consists only of the reference attenuation, one may entirely divorce the calculations from those concerned with statistics.

The two modes of operation use very similar calling sequences, and they are treated below in parallel.

Using the Longley-Rice model of radio propagation generally involves three consecutive steps: the preparation of parameters, the computation of the reference attenuation, and then the computation of selected statistics. Around these processes the programmer will put others which assemble the required input and which manipulate the resulting output. These latter we leave largely to the user's ingenuity, and in what follows we try to describe only the central three processes.

Parameter preparation is accomplished by one of two subroutines: QLRA for the area prediction mode and QLRPFL for the point-to-point mode. Also useful is the subroutine QLRPS. The reference attenuation is computed by LRPROP and the statistics by the function subprogram AVAR. Internally, most of the input and output is contained in the three common blocks /PROP/, /PROPA/, and /PROPV/. A few of the variables involved there must also be accessed directly by the user.

1. Common blocks.

```
COMMON/PROP/KWX,AREF,MDP,DIST,HG(2),WN,
  DH,ENS,GME,ZGND,HE(2),DL(2),THE(2)
    COMPLEX ZGND
```

This is the collection of the principal system and path parameters. It also includes the reference attenuation and an error marker. Note that all heights and distances are measured in meters.

KWX	Error marker. Indicates by its value the severity of the warning: 0 no warning 1 caution; parameters are close to limits 2 impossible parameters; default values have been substituted 3 internal calculations show parameters out of range 4 parameters out of range
AREF	Reference attenuation. This is computed by the subroutine LRPROP.
MDP	Mode of the propagation model. Values: -1 point-to-point 1 area prediction; to initialize 0 area prediction; to continue For further remarks see note 2 below.
DIST	Distance between terminals. See note 3 below.
HG	Heights of the antennas above ground.
WN	Wave number of the radio frequency.
DH	Terrain irregularity parameter.
ENS	Surface refractivity.
GME	Effective earth's curvature.
ZGND	Surface transfer impedance.
HE	Effective antenna heights.
DL	Horizon distances.
THE	Horizon elevation angles.

Note 1. The error marker KWX is meant to serve as a warning to the user that one or more of the parameters have values that make the results dubious or unusable. Except when it has the value 2, there is no effect on the computations. The value is cumulative in that after a series of calculations it will retain its highest value. Since it is never reset to 0, the user must do this himself.

Note 2. The value of MDP is handled automatically by QLRA and QLRPFL. In the area prediction mode it must first be set to 1 whereupon LRPROP will initialize various constants and set MDP to 0. On subsequent calls where it is only the distance that varies, LRPROP need not recompute those constants.

Note 3. The value of DIST is entered in two ways. In the point-to-point mode it is entered directly into /PROP/. This is done automatically by QLRPFL. In the area prediction mode the distance is an actual parameter in the call to LRPROP.

```
COMMON/PROPV/LVAR,SGC,MDVAR,KLIM
```

This is the collection of instructions for treating variability in the subroutine AVAR.

LVAR Level to which coefficients in AVAR must be defined. Each time the parameter indicated below is changed, LVAR must be set to at least:

level	parameter
0	none
1	DIST
2	HE, etc.
3	WN
4	MDVAR
5	KLIM

The subroutine AVAR will compute the necessary coefficients and reset LVAR to 0.

SGC The standard deviation of confidence. Output by AVAR, it may be used to compute a confidence level.

MDVAR Mode of variability calculations. Values:

0 Single message mode: Time, location, and situation variability are combined together to give a confidence level.

1 Individual mode: Reliability is given by time availability. Confidence is a combination of location and situation variability.

2 Mobile mode: Reliability is a combination of time and location variability. Confidence is given by the situation variability.

3 Broadcast mode: Reliability is given by the two-fold statement of <u>at least</u> q_T of the time in q_L of the locations. Confidence is given by the situation variability.

In addition, to these values may be added either or both of the numbers 10 and 20 with the meanings:

+10 Location variability is to be eliminated as it should when a well-engineered path is being treated in the point-to-point mode.

+20 Direct situation variability is to be eliminated as it should when considering interference problems. Note that there may still be a small residual situation variability.

KLIM Climate code. Values:

1 Equatorial
2 Continental subtropical
3 Maritime subtropical
4 Desert
5 Continental temperate
6 Maritime temperate over land
7 Maritime temperate over sea

```
COMMON/PROPA/DLSA,DX,AEL,AK1,AK2,AED,EMD,AES,EMS,
   DLS(2),DLA,THA
```

The collection of parameters and coefficients which define the reference attenuation as a function of distance. Ordinarily of no interest to the user.

```
COMMON/SAVE/...
```

A collection of miscellaneous constants and coefficients which must remain defined in certain of the subroutines. Used in place of the SAVE directive and of no interest to the user.

2. Parameter preparation.

The reference attenuation requires the variables

MDP, DIST, HG, WN, DH, ENS, GME, ZGND, HE, DL, THE

and also an attention to KWX. The statistics require the variables

MDVAR, KLIM, ZT, ZL, ZC

and also an attention to LVAR; note that the value of MDVAR determines the meanings of ZT, ZL, ZC. The following subroutines should be used to introduce many of these variables.

```
CALL QLRPS(FMHZ,ZSYS,EN0,IPOL,EPS,SGM)
```

This will define WN, ENS, GME, ZGND in /PROP/

FMHZ	Frequency in MHz.
ZSYS	Average elevation above sea level of the system; if 0, EN0 will be interpreted as ENS.
EN0	Minimum monthly mean surface refractivity reduced to sea level; if it is desired to introduce ENS instead, then set ZSYS=0.
IPOL	Polarization code: 0, horizontal; 1, vertical.
EPS,SGM	Ground constants.

```
CALL QLRA(KST,KLIM,MDVAR)
```

Prepares parameters for the area prediction mode. Prior to this call one should define HG, DH and WN, ENS, GME, ZGND in /PROP/. The present routine will then define HE, DL, THE, LVAR, and optionally KLIM, MDVAR. It sets MDP=1.

KST	Siting criterion code for each terminal; an array of length 2.
KLIM	Climate code. If greater than 0, the routine will put this value in /PROPV/ and set LVAR=5.
MDVAR	Mode of variability. If non-negative, the routine will put this value in /PROPV/ and set LVAR to at least 4.

In any case, the routine sets LVAR to at least 3.

```
CALL QLRPFL(PFL,KLIM,MDVAR)
```

Prepares parameters for the point-to-point mode and calls LRPROP thus defining also the reference attenuation AREF. Prior to this call one should define HG and WN, ENS, GME, ZGND in /PROP/. One should also have prepared a terrain profile in the array PFL. For this we imagine a sequence of elevations $p_o, p_1, \ldots, p_{np}$ taken at equal intervals ξ from the point under the first terminal to that under the second. Note that the path distance is then $n_p\xi$.

PFL	Terrain profile. An array packed with the values n_p, ξ, p_o, ..., p_{np}, in that order. Thus PFL(1) is the floating point representation of n_p, PFL(2) equals the interval ξ between profile points, and PFL(i+3) equals p_i, i=0, ..., n_p, i.e., the elevation of the point distant $i\xi$ from the first terminal. The total length of the array is n_p+3.
KLIM	Climate code. If greater than 0, the routine will put this value in /PROPV/ and set LVAR=5.
MDVAR	Mode of variability. If non-negative, the routine will put this value in /PROPV/ and set LVAR to at least 4.

In any case the routine sets LVAR to at least 3.

It should be noted that the Longley-Rice model is silent on many of the details for defining some of the path parameters. This is particularly true of the effective heights $h_{el,2}$ and, to some lesser degree, of the terrain irregularity parameter Δh. The effective height, for example, is defined as the height above the "effective reflecting plane," and in the past the investigator has been urged to use his own best judgment as to where that plane should be placed. The subroutine QLRPFL, in trying to automate the definition of all parameters, has been forced to define explicitly all missing details. It has done this in a way that seems reasonable and in full accord with the intent of the model. These techniques should not, however, be construed to have any "official" standing.

3. <u>The reference attenuation</u>.

After defining all necessary parameters, the next step is to compute the reference attenuation. This is done by a single call.

```
CALL LRPROP(D)
```

This will define the reference attenuation AREF in /PROP/. Prior to this call one should have defined MDP, WN, HG, DH, ENS, GME, ZGND, HE, DL, THE in /PROP/. In the point-to-point mode (when MDP=-1), the distance should also have been defined as DIST in /PROP/. The formal parameter D will be ignored. In the area prediction mode (when MDP=1 or 0), D represents the distance and LRPROP will replace DIST in /PROP/ by this value. Also, on the first entry after a set of parameters has been defined, one should set MDP=1. Then LRPROP will set switches, define certain constants, and reset MDP to 0. On subsequent calls, if it is only the distance that changes, one should not redefine MDP.

In the area prediction mode there is also a special call obtained by setting D=0. In general, a call to LRPROP will result in the definition of only those coefficients that are necessary to compute the reference attenuation at the indicated distance. In this special call, however, all coefficients in /PROPA/ will be defined. If desired, the user can then consider these coefficients to be additional output from LRPROP.

4. Statistics.

Statistics are available through the function subprogram AVAR in the form of quantiles--i.e., values of attenuation which are not exceeded for a fraction q of the samples. Rather than using the fraction q directly, however, we convert our terminology to an equivalent standard normal deviate z defined by

$$q = Q(z) = (2\pi)^{-1/2} \int_z^\infty e^{-t^2/2}\, dt \quad .$$

The function Q is the complementary normal probability function as defined in most texts on statistics. This standard normal deviate is used because the random variables involved are all normally distributed or very nearly normally distributed, and calculations using them are greatly simplified. We use the complementary function rather than the direct function because we usually think in terms of a received signal level rather than a loss or an attenuation and would like to say that this level is at least so large for a fraction $q=Q(z)$ of the samples.

Note that Q is a monotonically decreasing function and that as q goes from 0 to 1, z goes from ∞ to $-\infty$. For example, $Q(0)=0.5$, $Q(1.28155)=0.1$, and $Q(-1.28155)=0.9$.

Before using AVAR, one should have defined all system and path parameters in /PROP/ and also the reference attenuation AREF. In addition, one should define LVAR, MDVAR, KLIM in /PROPV/.

Then the function AVAR can be evaluated. It has three formal parameters whose meanings are determined by the mode of variability as specified in MDVAR. In what follows we use freely a notation such as QC, ZC to indicate a pair consisting of a probability and its corresponding standard normal deviate.

Single message mode (MDVAR=0).

A=AVAR(0.,0.,ZC)

Then with confidence QC the attenuation will not exceed A. The first two parameters are unused.

Individual and mobile modes (MDVAR=1 or 2).

A=AVAR(ZR,0.,ZC)

Then with confidence QC the attenuation will not exceed A with a reliability at least as large as QR. The second of the three parameters is unused.

Broadcast mode (MDVAR=3).

A=AVAR(ZT,ZL,ZC)

Then with confidence QC there will be at least QL of the locations where the attenuation will not exceed A for at least QT of the time.

In addition to AVAR there are two small function subprograms which, if desired, can be used to facilitate the translation between probabilities and standard normal deviates.

Q=QERF(Z)

Z=QERFI(Q)

These are the Q error function and the inverse of the Q error function respectively.

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In the Matter of	)	
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Advanced Television Systems	)	
and Their Impact Upon the	)	MM Docket No. 87-268
Existing Television Broadcast	)	
Service	)	

TO: The Commission

PETITION FOR PARTIAL RECONSIDERATION OF MIDWEST TELEVISION, INC.

Midwest Television, Inc. ("Midwest"), licensee of station KFMB-TV, NTSC Channel 8, San Diego, California, and station WCIA-TV, NTSC Channel 3, Champaign, Illinois, hereby petitions the Commission to reconsider its decisions in the above-referenced proceeding, specifically (i) the assignment of DTV Channel 8 to KABC-TV, Los Angeles, and the other DTV alloments/assignments in the area that will destroy the service received by up to nearly 600,00 people from KFMB-TV's existing NTSC Channel 8 station; (ii) the assignment of DTV Channel 55 to KFMB-TV, which will result in spacing problems with Mexican NTSC allotments; and (iii) the assignment of DTV Channel 3 to WBBM-TV, Chicago, which will result in new interference that will in some areas destroy the public's service from WCIA-TV's NTSC Channel 3 station in Champaign.

The Commission faced a tremendous task in developing new DTV channel assignments for more than 1600 full power NTSC stations. Midwest recognizes that the

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Statement of Stanley Salek, Consulting Engineer

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by Midwest Television, Inc., licensee of Station KFMB-TV, San Diego, California, to study the interference potential created by the co-channel allotment of TV Channel 8 for the digital television facilities of Station KABC-TV, Los Angeles, California.

Background

Station KFMB-TV is licensed to operate its NTSC television broadcasting facilities on Channel 8, with an effective radiated power ("ERP") of 316 kilowatts at a height above average terrain ("HAAT") of 226 meters, serving San Diego and the surrounding area. Station KABC-TV is licensed to operate its NTSC television broadcasting facilities on Channel 7, with 141 kilowatts ERP at 978 meters HAAT, serving Los Angeles and the surrounding area. The Sixth Report and Order to FCC Mass Media Docket 87-268 ("Sixth Report and Order"), released April 21, 1997, allotted Channel 8 for the digital television ("DTV") facilities of KABC-TV. The co-channel KFMB-TV NTSC and KABC-TV DTV facilities are separated by 171.7 kilometers, 102 kilometers short of the 273.6 kilometers specified in FCC Rule Section 73.623(d).

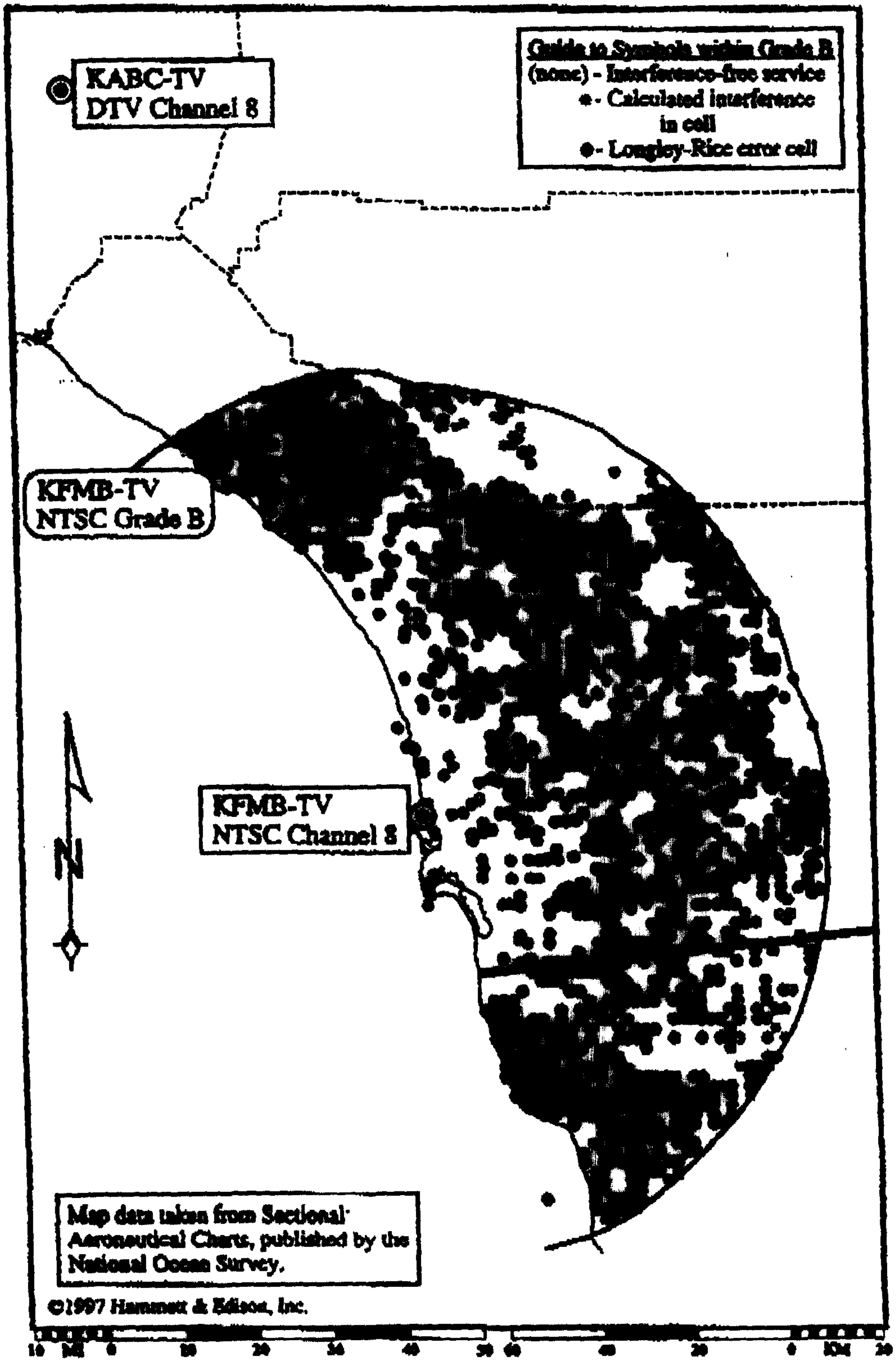
Deficiencies in Allotment Calculations

Appendix B to the Sixth Report and Order describes calculations and methodology used to develop the DTV Table of Allotments. Section 73.623(c)(2) of the revised FCC Rules references Appendix B as providing the procedure used to evaluate proposed modifications to allotted DTV facilities, along with Office of Engineering and Technology ("OET") Bulletin No. 69 which, as of this date, has not been released by the FCC. Appendix B provides a five-page summary of the procedures used to develop the allotment table, but by no means provides adequate guidance for conducting interference evaluations involving the newly-allotted DTV channels, with regard to potential interference to/from existing authorized NTSC facilities, or to/from other allotted DTV facilities.

In order to provide guidance to its clients that have received DTV allotments, Hammett & Edison obtained, directly from FCC OET, a copy of the computer software program used to generate the DTV allotment table. Once that software was operating properly and generating data consistent with that found in Appendix B, Table 1, presenting DTV allotment pairings with analog NTSC stations, the program was modified to serve as an analysis tool to study allotted DTV facility interference profiles and the effect of potential facility changes. This "forward looking" analysis program, as we have dubbed it, implements the desired-to-undesired ("D/U") ratios and taboo channels of revised Rule 73.623(c)(2), as opposed to the limits specified by the Advanced

Station KFMB-TV • Channels N8/D55 • San Diego, California

Calculated KABC-TV DTV Interference to KFMB-TV NTSC
Plus Longley-Rice Error Cell Locations
Determined Using FCC Algorithms



HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

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Figure 2